

Amdt. dated September 29, 2004
Reply to Office action of 06/29/2004

Serial No. 09/755,814
Docket No. TUC920000052US1
Firm No. 0018.0084

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REMARKS/ARGUMENTS

Objected Claims 11-16, 28-33, 45-50, 55, 59, and 63

The Examiner has objected to claims 11-16, 28-33, 45-50, 55, 59, and 63 as being dependent upon a rejected base claim, and had indicated that these claims would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants have rewritten claims 11, 28, 45 in independent form, including all of the limitations of the base claim and any intervening claims. Claims 12-16, 29-33, 46-50, 55, 59, and 63 depend directly or indirectly on the rewritten independent claims 11, 28, 45.

In amending claims 11, 28, 45 Applicants have removed redundancies by replacing the "first operation routine" with "reboot routine", and the "second operation routine" with "initialization routine". Additionally, the inclusion of the "third counter" in the requirement "using the first, second, and third counters to select one of the multiple code images from the memory device to execute" has rendered the clause "using the third counter, in addition to the first and second counters, to select one of the multiple copies of the code image from the memory device to execute" redundant.

For the above reasons, applicants submit that claims 11-16, 28-33, 45-50, 55, 59, and 63 are in a condition for allowance.

Rejected Claims 1-10, 17-27, 34-44, 51-54, 56-58, and 60-62

The Examiner has rejected claims 1-10, 17-27, 34-44, 51-54, 56-58, and 60-62 under 35 U.S.C. 103(a) as being unpatentable over Fiske (US 6,324,692) in view of Smith (US 5,949,997). Applicants traverse the rejections.

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Independent claims 1, 18, 35

Independent claims 1, 18, 35 provide a method, system, and article of manufacture for selecting a code image during a reboot routine, comprising:

- maintaining multiple code images in a memory device;
- executing a first operation routine;
- incrementing a first counter if the first operation routine succeeds;
- executing a second operation routine;
- incrementing a second counter if the second operation routine succeeds; and
- using the first and second counters to select one of the code images from the memory device to execute.

The Examiner has rejected independent claim 1 under U.S.C. 103(a) as being unpatentable over Fiske in view of Smith.

The Examiner acknowledges that the cited Fiske (FIG. 2, col. 3, line 55 - col. 4, line 39) does not teach or suggest the claim requirement of selecting one of the code images during a reboot routine. To overcome the shortcomings of the cited Fiske the Examiner cites Smith (col. 6: lines 50-65) as teaching the claim requirement selecting one of the code images during a reboot routine.

The cited Smith discusses a first rebooting of a microprocessor via a current program and a second rebooting of the microprocessor using an updated program. During the second reboot using the updated program, the microprocessor verifies that the updated program is operation and/or error free. If so, then the updated program is used for future reboots. If not, the microprocessor reboots using the current program. The Examiner mentions that the method in the cited Smith is performed during a reboot routine since the method of the cited Smith selects a boot code image.

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The Examiner mentions that it would have been obvious to one of ordinary skill in the art to perform the code selecting method taught by the cited Fiske during a reboot routine, as taught by the cited Smith. The Examiner motivates the combination by mentioning that this would ensure that a computer will be able to successfully reboot even if a boot code image becomes non-operable.

According to MPEP (Rev. 2, May 2004) 2143.01 (page 2100-131) the proposed modification cannot render the prior art unsatisfactory for its intended purpose. The Examiner has suggested modifying the teachings of the cited Fiske, such that the teachings of the cited Fiske are performed during reboot.

The cited Fiske discusses performing operations after completing the reboot routine. For example, col. 4, line 13-14 of the cited Fisk discusses that "once the processor is rebooted, a reboot driver is triggered." The cited Fisk discusses (Fiske: col. 4, lines 15-18) that the reboot driver is an external application driver which is part of the operating system which functions in the operating system space. Nowhere does the cited Fisk teach or teach or suggest that operations such as incrementing the first and second counters, executing the first and second operation routines are performed during reboot as required by the claims. In contrast, the cited Fisk discusses that operations are performed after the reboot. The counters in the cited Fisk are incremented after reboot, whereas the claims require incrementing the first and second counter during reboot. Additionally, the operations in the cited Fisk are performed by the reboot driver after reboot and not during reboot as required by the claims. Therefore, the cited Fiske is repeatedly mentioning that the operations described in the cited Fiske are performed after reboot.

Applicants submit that the operations discussed in the cited Fiske if performed during reboot would render the cited Fiske inoperable. For example, the Fiske discusses using the reboot driver to perform setting the flag that the Examiner has interpreted to be a counter of the claim requirements. The cited Fiske discusses (Fiske: col. 4, lines 15-18) that the reboot driver is an external application driver. The cited Fiske also mentions that once the processor is rebooted

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the reboot driver is triggered. If the cited Fiske was modified as suggested by the Examiner then the reboot driver, i.e., an external application driver, of the cited Fiske would have to start before the completion of the rebooting of the processor. However, external application drivers, such as, the reboot driver, cannot start before a processor has completed rebooting. Therefore, the proposed modification of the Examiner of the cited Fiske would render the cited Fiske inoperable.

For the above reasons, claims 1, 18, 35 are patentable over the cited art.

Claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62

The Examiner has also rejected pending claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62 that depend on the pending independent claims 1, 18, and 35 respectively. Applicants submit that these claims are patentable over the cited art because they depend from claims 1, 18, and 35 respectively which are patentable over the cited art for the reason discussed above, and because the combination of the limitations in the dependent claims 2-10, 17, 19-27, 34, 36-44, 51-54, 56-58, 60-62 and the base and intervening claims from which they depend provide further grounds of distinction over the cited art.

Claim 2, 19, 36

Claim 2 depends on claim 1, and further comprises:

designating one code image as non-operational if the first counter is a first value and the second counter is a second value, wherein one other code image not designated as non-operational is selected to execute.

The Examiner has rejected claim 2 under 35 USC 103(a) as being anticipated by Fiske in view of Smith. Applicants traverse.

The cited Fisk (col. 4, lines 10-34) discusses reverting back to a backup copy of a program or to stay at the current revision. Nowhere, does the cited Fisk teach or suggest the claim

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requirement of designating one code image as non-operational if the first counter is a first value and the second counter is a second value, wherein one other code image not designated as non-operational is selected to execute. The cited Fisk discusses setting the flags and counters of in the operating system space after reboot, whereas the claims require designating the code image during reboot.

Neither does the cited Smith teach or suggest the claim requirement of designating one code image as non-operational if the first counter is a first value and the second counter is a second value, wherein one other code image not designated as non-operational is selected to execute

For the above reasons, claims 2, 19, and 36 are patentable over the cited Fiske and the cited Smith.

Claims 3, 20, 37

Claim 3 depends on claim 2 and further requires that the first value is greater than zero and the second value is zero.

The Examiner has rejected claim 3 under 35 USC 103(a) as being anticipated by Fiske in view of Smith. Applicants traverse

The cited Fiske (col. 4: lines 10-34) discusses setting flags and counters, but the flags and counters of the cited Fiske are set in the operating system space after reboot, whereas the claims require setting the first and second values during reboot that the cited Fiske neither teach nor suggest.

Neither does the cited Smith teach or suggest the claim requirement of setting the first and second values during reboot.

For the above reasons, claims 3, 20, and 37 are patentable over the cited Fiske because the cited Smith.

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Claims 4, 21, 38

Claim 4 depends on claim 2 and further requires:
receiving an update to the code image;
determining whether one code image is designated as non-operational; and
overwriting the code image designated as non-operational with the received update to the code image if one code image is designated as non-operational.

The Examiner has rejected claim 4 under 35 USC 103(a) as being unpatentable over Fiske in view of Smith. The cited Fiske does not teach or suggest the claim requirement of overwriting a non-operational code image with the received update. The cited Smith (col. 6: lines 50-65) discusses selecting between a current program and an updated program. If the updated program is non-operational then the microprocessor is rebooted with the current program. Nowhere does, the cited Smith teach or suggest the claim requirement of overwriting a non-operational code image with the received update. In the cited Smith, the received update is the updated program and the current program is also present. In the cited Smith, the updated program is not overwritten by the current program.

Therefore, neither the cited Fiske nor the cited Smith teach or suggest the claim requirement of overwriting the code image designated as non-operational with the received update to the code image if one code image is designated as non-operational.

For the above reasons, claims 4, 21, and 38 are patentable over the cited Fiske and the cited Smith.

Claims 5, 22, 39

Claim 4 depends on claim 5 and further comprises:
determining an earliest version of the code images in the memory device; and
overwriting the determined earliest version of the code image if one code image is not designated as non-operational.

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Without citing any references, the Examiner has indicated that it would have been obvious to one of ordinary skill in the art to overwrite an older version of a code image if both code images are operational because newer versions of programs normally provide improved functionality over older versions. However, the claim requires overwriting the determined earliest version of the code image if one code image is not designated as non-operational and the Examiner's argument is not addressing this claim requirement.

For the above reasons, claims 5, 22, and 39 are patentable.

Claims 7, 24, 41

Claim 7 depends on claim 1, and further requires that the first operation routine comprises a reboot routine and the second operation routine comprises an initialization routine.

The Examiner has not provided any reasons for rejecting claims 7, 24, and 41. Nowhere does the cited Fiske or the cited Smith teach or suggest an initialization routine as required by the claims. The routines of the cited Fiske or the cited Smith are for reboot.

Applicants submit that claims 7, 24, 41 are patentable over the cited Fiske and the cited Smith.

Claims 8, 25, 42

Claim 8 depends on claim 7, and further comprises:

incrementing the second counter if the initialization routine successfully completed;
rebooting if the initialization routine failed; and
performing another iteration of all previous steps after rebooting.

The Examiner has rejected claim 8 under 35 USC 103(a) as being obvious over Fiske in view of Smith. Applicants traverse.

The cited Fiske (FIG. 2, col. 3: line 55 - col. 4, line 39) discusses rebooting

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followed by running the reboot driver. However, the reboot driver discussed in the cited Fiske is different from the initialization routine of the claim requirements. Furthermore, nowhere does the cited Fiske teach or suggest the claim requirement of performing another iteration of all previous steps after rebooting.

For the above reasons, claims 8, 25, 42 are patentable over the cited Fiske and the cited Smith because neither the cited Fiske nor the cited Smith teach or suggest the claim requirement of performing another iteration of all previous steps after rebooting. The cited Fiske discusses reverting back to the backup copy in case of failure but does not teach or suggest the claim requirement of rebooting if the initialization routine failed and performing another iteration of all previous steps after rebooting. In the cited Fiske, if the second routine fails the monitor program reverts back to the backup copy of the program.

For the above reasons, claims 8, 25, 42 are patentable over the cited art.

Claims 9, 26, 43

Claim 9 depends on claim 7 and further comprises:

selecting one copy of the code image, wherein the executed initialization routine is a component of the selected code image, wherein the selected code image is designated as non-operational if the first counter is the first value and the second counter is the second value; and

selecting one other copy of the code image if the selected code image is designated as non-operational.

The Examiner has rejected claim 9 under 35 USC 103(a) as being anticipated by Fiske in view of Smith. Applicants traverse.

Nowhere does the cited Smith (col. 6: lines 50-65) teach or suggest the claim requirement that the executed initialization routine is a component of the selected code image.

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The cited Smith discusses selecting between a current program and an updated program depending on whether the updated program is operational and/or error free.

For the above reasons, claims 9, 26, and 43 are patentable over the cited Fiske and the cited Smith, because the cited Fiske and the cited Smith, either alone or in combination, do not teach or suggest all the claim requirements.

Amended Claims 17, 34, 51

Claim 17 depends on claim 1, wherein one operation routine comprises a function routine to perform a device specific operation.

The Examiner has rejected claim 17 under 35 USC 103(a) as being obvious over Fiske in view of Smith. Nowhere does the cited Fiske or the cited Smith teach or suggest the claim requirement that one operation routine comprises a function routine to perform a device specific operation.

For the above reasons, claims 17, 34, 51 are patentable over the cited Fiske or the cited Smith, either alone or in combination.

Claims 52, 56, 60

Claims 52, 56, 60 depend on claim 1, 18, 35 respectively, wherein executing the first and second operation routines, and incrementing the first and second counters are performed during a reboot operation, and wherein the code images include implementations of the first and second counters.

Applicants submit that nowhere do the cited Fiske or the cited Smith teach or disclose the claim requirement that the code images include implementations of the first and second counters. While the cited Fiske discusses a flag and a counter nowhere does the cited Fiske teach or suggest the claim requirement that the code images included implementations of the first and second counters.

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For the above reasons, claims 52, 56, 60 are patentable over the cited art.

Claims 53, 57, 61

Claims 53, 57, and 61 depend on claims 52, 56, 60 respectively, wherein logic for executing the first and second operation routines, logic for incrementing the first and second counters, logic for using the first and second counters to select one of the code images, and the code images are implemented in firmware that can be updated.

The Examiner mentions that it is well known in the art that operations that are performed by using hardware can also be performed using software can also be performed using hardware. However, nowhere does the cited Fiske or the cited Smith teach or suggest the claim requirements that the code images and the various logics are implemented in firmware that can be updated. The updates discussed in the cited Fiske or the cited Smith are for selecting a program to boot from.

For the above reasons, claims 53, 57, 61 are patentable over the cited art.

Claims 54, 58, 62

Claims 54, 58, and 62 depend on claims 7, 24, and 41, wherein the initialization routine is included in the code image and is capable of initializing variables and parameters used by the code image.

Nowhere has the Examiner provided any reasons for the rejection of claim 54. Nowhere does the cited Smith or the cited Fiske teach or suggest the claim limitation that the initialization routine is included in the code image and is capable of initializing variables and parameters used by the code image. The cited Fiske and the cited Smith discusses reboots but does not teach or suggest the initialization routine of the claim requirements.

For the above reasons, claims 54, 58, 62 are patentable over the cited art.

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New Claims 64-69

The requirements of new claims 64-69 may be found in at least page 5: lines 9-11, and original claim 11 of the Application. These requirements are not taught or suggested by either the cited Fiske or the cited Smith and therefore these new claims 64-69 are patentable over the cited art.

Conclusion

For all the above reasons, Applicant submits that the pending claims 1-69 are patentable over the art of record. Applicants have indicated appropriate fees. Nonetheless, should any additional fees be required, please charge Deposit Account No. 50-0585.

The attorney/agent invites the Examiner to contact him at (310) 557-2292 if the Examiner believes such contact would advance the prosecution of the case.

Dated: September 29, 2004

By: Rabindranath Dutta

Rabindranath Dutta
Registration No. 51,010

Please direct all correspondences to:

Rabindranath Dutta
Konrad Raynes & Victor, LLP
315 South Beverly Drive, Ste. 210
Beverly Hills, CA 90212
Tel: 310-553-7977
Fax: 310-556-7984

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